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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/534,696	03/24/2000	William L. Betts	61607-1350	2506

7590 10/28/2004

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EXAMINER

HA, DAC V

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/534,696

Applicant(s)

BETTS, WILLIAM L.

Examiner

Dac V. Ha

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-16,18-25 and 56-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7,11,12,16,20,21,25,70,71 and 73-75 is/are allowed.
- 6) ☒ Claim(s) 9,13-15, 72,10,67-69, 18,19,22-24, 55-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. **Claims 56-58, 61-63, 66** are rejected under 35 U.S.C. 102(e) as being anticipated by Marko (US 6,229,824).

Regarding claim 56, Marko teaches the followings:

“means for convolutionally encoding a data stream to produce a stream of encoded symbols” (Figure 1, element 12; Figure 2, element 30; Abstract; Col. 1, lines 64-65; Col. 4, lines 41, 49);

“means for transmitting each of said encoded symbols alternately onto a selected one of a plurality of separate communication paths” (Fig. 1 and 5).

Regarding claim 61, see claim 56.

Regarding claim 57, Marko further teaches the claimed subject matter “a switching means ... second output through said convolutional encoding means” in Figure 1, element 16; Col. 4, lines 34-36, wherein element 16 of Figure 1 teaches “a switching means” and first and second output of element 16 teach “a first output” and “a second output” respectively.

Regarding claim 62, see claim 57.

Regarding claim 58, the claimed subject matter “wherein said convolutional encoding means performs trellis encoding” is inherent from the use of convolutional encoding.

Regarding claim 63, see claim 58.

Regarding claim 66, Marko further teaches “wherein said convolutional encoding means is a single convolutional encoder” in Fig. 1.

3. **Claims 10** are rejected under 35 U.S.C. 102(e) as being anticipated by Sinha et al. US 6,292,917) (hereafter Sinha).

Regarding claim 10, Sinha teaches the followings:

“means for convolutionally encoding ... data streams” (Figure 5, element 214; Abstract; Col. 3, lines 23-28; Col. 7, lines 9-11; Col. 5, lines 24-44; Col. 8, lines 15-24; Col. 10, lines 26-27);

“means for interleaving ... data streams” (Figure 5, element 215);

“means for transmitting ... separate communication paths” (Figure 5, element 206; Col. 6, lines 61-62; Abstract).

“wherein ... data streams” in Figure 5, element 214.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 59-60, 64, 65** are rejected under 35 U.S.C. 103(a) as being unpatentable over Marko.

Regarding claim 59, Marko teaches all the claimed subject matter in claim 59, as stated above in claim 56, except for the claimed subject matter "wherein said separate communication paths are each wire pairs". However, this claimed subject matter would have been obvious to one skilled in the art as the intended use since Marko would apply equally to other communication system (i.e. telephonic, wherein wire channel is used).

Regarding claim 64, see claim 59.

Regarding claim 60, Marko teaches all the claimed subject matter in claim 59, as stated above in claim 56, except for the claimed subject matter "wherein ... processing means". However, the claimed subject matter would have been obvious to one skilled in the art as optional since implementing with software would result in a more flexible and robust encoder.

Regarding claim 65, see claim 60.

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6. **Claims 67-69** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha.

Regarding claim 67, the claimed subject matter “wherein said convolutional encoding means performs trellis encoding” is inherent from the use of convolutional encoding.

Regarding claim 38, the claimed subject “wherein said separate communication paths are each wire pairs” matter would have been obvious to one skilled in the art as the intended use since Sinha would apply equally to other communication system (i.e. telephonic, wherein wire channel is used).

Regarding claim 69, the claimed subject matter “wherein ... processing means” would have been obvious to one skilled in the art as optional since implementing with software would result in a more flexible and robust encoder.

7. **Claims 9, 13-15, 18, 19, 22-24, 55, 72** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha in view of Zimmermann et al. (US 6,522,700) (hereafter Zimmermann).

Regarding claim 9, Sinha teaches the followings:

“means for convolutionally encoding ... data streams” (Figure 5, element 214; Abstract; Col. 3, lines 23-28; Col. 7, lines 9-11; Col. 5, lines 24-44; Col. 8, lines 15-24; Col. 10, lines 26-27);

“means for interleaving ... data streams” (Figure 5, element 215);

“means for transmitting ... separate communication paths” (Figure 5, element 206; Col. 6, lines 61-62; Abstract).

Sinha differs from the claimed invention in that Sinha doesn't teach the claimed subject matter “first and second ... encoding means”.

Zimmerman teaches the claimed subject matter “first and second ... encoding means” in Figure 2, element 30.

Both Sinha and Zimmermann relate to convolutional coding. Even though Sinha shows channel coding (Figure 5, element 214) for performing coding process, Sinha suggests that each data stream for each class could have been coded separately (Col. 5, line 32). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize a plurality of convolutional encoder, each for a data stream, as taught by Zimmermann into the channel coder of Sinha for accomplishing encoding of plurality of data streams as optional.

Regarding claims 18, 55, see claim 9.

Regarding claim 13, the claimed subject matter “wherein said convolutional encoding means performs trellis encoding” is inherent from the use of convolutional encoding.

Regarding claim 14, the claimed subject “wherein said separate communication paths are each wire pairs” matter would have been obvious to one skilled in the art as the intended use since Sinha and Zimmermann would apply equally to other communication system (i.e. telephonic, wherein wire channel is used).

Regarding claims 15, 72, the claimed subject matter "wherein ... processing means" would have been obvious to one skilled in the art as optional since implementing with software would result in a more flexible and robust encoder.

Regarding claim 19, Sinha further teaches "wherein ... data streams" in Fig. 5.

Regarding claims 22-24, see claims 13-15, respectively.

Allowable Subject Matter

8. Claims 1-7, 11, 12, 70, 71, 16, 20, 21, 73-75, 25 allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-273-3040.

The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read "Dac V. Ha", with a horizontal line drawn underneath it.

Dac V. Ha
Examiner
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